Five new species of *Holoparamecus* Curtis (Coleoptera: Merophysiidae) from India and Sri Lanka

by

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With 21 figures

ABSTRACT

Five new species of *Holoparamecus* Curtis viz., H. (s. str.) imporcitis, H. (s. str.) aeger, H. (Calyptobium) sanguineus, H. (Calyptobium) velutinus and H. (Calyptobium) cordicollis are described; a key to the subgenera and species of *Holoparamecus* from India and Sri Lanka is given.

Crowson (1955) separated the tribes Merophysiini and Holoparamecini from the Lathridiidae to establish the family Merophysiidae and gave subfamily status to the former tribes. Hetschko (1926) listed 4 genera under the Holoparamecini (= Holoparamecinae), of which the genus Holoparamecus Curtis includes 34 species from the World. The genus Holoparamecus was erected by Curtis for the species H. depressus Curtis (= singularis Beck). Dajoz (1975) recognized 42 species under 7 subgenera of Holoparamecus. The Holoparamecus can be recognised by its typical (Fig. 1) elongated subdepressed form, head with well developed eyes, antennal insertions hidden with 1 or 2-segmented club, base of pronotum usually excavated or with a pair of protuberances or humps, front coxal cavities opened behind, elytral epipleura poorly developed and tarsal formula 3-3-3. HINTON (1941) mentioned that some species of Holoparamecus are associated with stored products; WATT (1969) recorded them in leaf litter in New Zealand. The authors have collected these insects chiefly from haystack. So far only 5 species under 3 subgenera are described from India and 2 species from Sri Lanka. In the present study H. clavipes (Motschulsky) and H. ceylonicus Dajoz are synonymized with H. attenuatum (Motschulsky), 5 new species are described, and a key to the subgenera and species of India and Sri Lanka is given.

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KEY TO THE SUBGENERA AND SPECIES OF HOLOPARAMECUS FROM INDIA AND SRI LANKA *

1. Antenna 11-segmented in both sexes Calyptobium Aubé 6
— Antenna less than 11-segmented, at least in male
2. Antenna 9-segmented in male and 10-segmented in female, prothorax less transverse
 Antenna 10-segmented in male and 11-segmented in female; prothorax transverse and slightly narrowed at base Tocalium Motschulsky
3. Apical segment of antennal club distinctly transverse and shorter than penultimate segment; eyes large (Fig. 1)
 Apical segment of antennal club about as broad as long and about as long as penultimate segment; eyes rather small 4
4. Pronotum devoid of small median pit; species distinctly pubescent (Fig. 2) singularis Beck
— Pronotum with a small median pit; species indistinctly pubescent
5. Basal hump on either side of pronotum transverse, basal groove on pronotal base extended towards front on lateral sides. (Fig. 3) imporcitis n. sp.
 Basal hump on either side of pronotum subsquare, basal groove on pronotal base not extended towards front (Fig. 4) aeger n. sp.
6. Pronotum rather flat and basal humps united at middle (Fig. 5) . sanguineus n. sp.
 Pronotum rather convex and basal humps clearly separated at middle
7. Pronotum impunctate but pubescent, basal humps separated by a median distinct carina; base of elytra about as wide as prothoracic base (Fig. 6)
 Pronotum with small to moderately large punctures and finely pubescent; basal humps separated by a longitudinal depression within which a median indistinct carina present (Figs. 7, 8)
8. Lateral carina at base of pronotum distinct and extend upto one third of length of pronotum, lateral carina forms distinct angle with prothoracic base near hind angles (Fig. 7)
— Lateral carina at base of pronotum shorter and indistinctly carinate, base of pronotum rounded near hind angles (Fig. 8) attenuatum (Motschulsky)

^{*} H. horni (Wasmann) can be distinguished from any other species known from India and Sri Lanka by the presence of a median longitudinal depressed line on pronotum from anterior one-third to posterior end, penultimate segment of antenna distinctly elongated and about twice as long as apical one, and large eyes (Fig. 11). The subgeneric status of this species could not be found, as the only 'type' specimen with 10-segmented antenna was studied without dissecting the genitalia.

- 9. Penultimate segment of antenna distinctly elongated and about twice as long as apical segment, eyes large; pronotum devoid of basal humps, with a transverse groove (Fig. 9) orientalis (Motschulsky)

Holoparamecus (s. str.) imporcitis n. sp.

This species shows resemblances with *H. kunzei* Aubé but can be differentiated by its apical segment of antennal club different and as broad as long, eyes smaller, basal longitudinal groove of pronotum extended towards front. This species is fairly common in North-East India and found under haystack.

General appearance (Fig. 3) elongated, moderately depressed, somewhat subparallel, pronotum moderately narrowed posteriorly with basal humps and a small median depression, yellowish to reddish brown with short, semierect and scanty pubescence.

Exposed part of head wider than long, eyes moderately large, eyes coarsely faceted and shorter than half of length of head, fronto-clypeal suture arcuate, vertex and clypeus impunctate, anterior margin of clypeus finely pubescent, pubescence on vertex scanty. Antenna moderately long and slender, scape moderately large and slightly hidden under lateral side of frons, pedicel slightly longer than scape but narrower, segments 3-7 (in male segments 3-6) slightly shorter than pedicel, subequal and slightly elongated, subsequent segment slightly wider and about as broad as long, segments of club almost equal in length and about as broad as long.

Prothorax: slightly transverse (1:1.3), widest near anterior one-third, narrowed posteriorly, base little contracted, apical margin sinuate and not bordered, anterior angles bluntly obtuse; lateral sides gently curved and sinuate in posterior half, finely bordered, narrowly reflexed; basal margin almost straight, faintly sinuates on either sides of middle, posterior angles slightly obtuse; pronotum slightly convex, a small median pit with a depressed impression extending posteriorly, basal humps well developed and closely situated, each hump slightly transverse, humps separated by a fine median ridge, outer margin of humps bordered by shallow and narrow groove, grooves on lateral sides extend slightly in front of humps; carinae near lateral margin short; pronotum impunctate and finely pubescent. Elytra convex, elongate-oblong, widest near anterior half, sides gently and evenly curved, rather subparallel, apex rounded, humeri obtuse. Puncturation fine and confused, pubescence fine and posteriorly projected; sutural striae extending beyond posterior two-thirds, more distinct in anterior half. Aedeagus (Fig. 12, 13) with median lobe slender, distinctly narrowed at apex, with an elongated, shallow groove along its length and moderately bent ventrally (tegmen not studied).

Measurements of holotype: Total length 1.14 mm., width of head across eyes 0.25 mm., length of antenna 0.38 mm., length and breadth of prothorax 0.27 and 0.34 mm. length and breadth of elytra 0.68 and 0.45 mm.

Holotype &, India: West Bengal, Howrah district, Sankrail, 25.XII.1974, T. K. Pal, ex haystack. Paratypes 20 ex., data same as holotype; Paratypes 7 ex., Howrah district, Ranihati, 11.V.1975, T. K. Pal, ex garbage of hays; Other material: 1 ex., 24-Parganas district, Sagar Is., 11.VII.1972. A. K. Mukherjee, ex Boya nest; 2 ex.

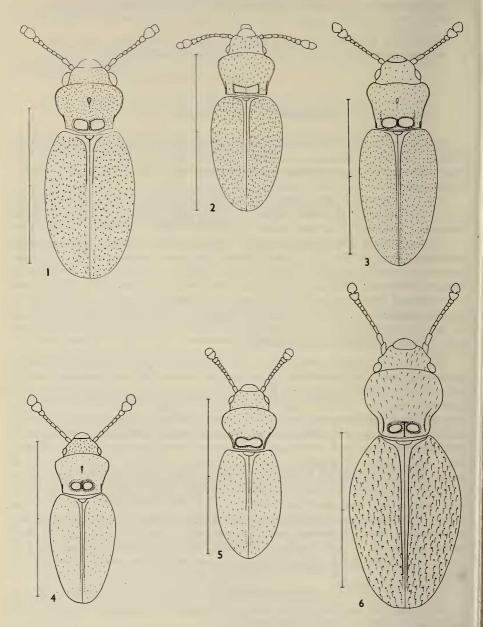


Fig. 1-6.

1. Holoparamecus (s. str.) kunzei Aubé, dorsal view., 2. Holoparamecus (s. str.) singularis Beck, dorsal view; 3. Holoparamecus (s. str.) imporcitis n. sp., dorsal view; 4. Holoparamecus (s. str.) aeger n. sp., dorsal view; 5. Holoparamecus (Calyptobium) sanguineus n. sp., dorsal view; 6. Holoparamecus (Calyptobium) velutinus n. sp., dorsal view.

Jalpaiguri district, Dhupguri, 15.IV.1971, T. Sengupta, ex sweeping bush; 6 ex., Bihar, Chaibasa, 27.XII.1970, T. Sengupta, ex sweeping bush; 12 ex., ASSAM, Kaziranga, Mikir hills, 14.XI.1974, T. Sengupta, ex dried Til Plants; 2 ex., Kaziranga, Panbari, 15.XI.1974, T. Sengupta, ex under bark of *Bombyx* sp.; 1 ex., UTTAR PRADESH, Gorakhpur, Kusmi forest, 5.XI.1972, T. Sengupta, ex haystack (deposited in Zoological Survey of India, Calcutta).

Distribution: India: West Bengal, Bihar, Assam, Uttar Prasdeh.

Holoparamecus (s. str.) aeger n. sp.

One example of this species present in the collection of Zoological Survey of India collected from Calcutta in June, 1911, F.H.G. (Reg. No. 8553/18) labelled as *Holoparamecus kunzei* Aubé, which has been compared with *H. kunzei* Aubé (Ceylan Northern, Pulian Kulam) borrowed from the Museum d'Histoire naturelle, Genève and found that this specimen is quite different from the latter species, though this species has resemblance with *H. imporcitis* and *H. kunzei*. But unlike *kunzei* the apical segment of antenna of this species transversely rounded and almost equal to preceding segment, eyes distinctly smaller; and shapes of prothorax, elytra and pronotal humps are different. It differs from *H. imporcitis* by the shape of pronotal humps and basal groove devoid of any longitudinal lateral extension as found in *imporcitis*.

General appearance (Fig. 4) elongated, moderately depressed, pronotum moderately narrowed posteriorly, with basal humps separated by median impressed line, shiny, yellowish brown, with short, semierect and sparse pubescence.

Exposed part of head wider than long, eyes small, coarsely faceted, about onethird as long as head, fronto-clypeal suture slightly arcuate, impunctate with few short and fine pubescence. Antenna moderately long and slender, scape moderately large and slightly hidden under lateral side of frons, pedicel longer than scape, segment 3 slightly shorter and narrower than pedicel, segments 4-7 short and subequal, segment 7 slightly broader than preceding segment and transverse, segments 9 and 10 transversely rounded. Prothorax transverse (1: 1.25)), widest near anterior one-third, narrowed posteriorly, apical margin feebly rounded and not bordered, anterior angles bluntly obtuse, lateral sides gently curved and slightly sinuate in posterior one-third, finely bordered, basal margin slightly sinuated on either sides of middle, posterior angles slightly obtuse, pronotum moderately convex, basal humps well developed, each hump slightly transverse, humps separated by a fine median impressed line, outer margin of humps bordered by shallow and narrow groove; lateral carinae short and approximated towards side margins; pronotum finely and sparsely punctate, shiny and sparsely pubescent. Elytra convex, oblong, widest in anterior half, sides gently and evenly curved, humeri obtuse, puncturation fine and confused, pubescence fine, sparse and posteriorly projected, sutural striae extended beyond posterior two-thirds and more distinct in anterior half.

Measurements of holotype: Total length 1.02 mm., width of head across eyes 0.25 mm., length of antenna 0.37 mm., length and breadth of prothorax 0.25 and 0.32 mm., length and breadth of elytra 0.67 and 0.42 mm.

Holotype 3, India: West Bengal, Calcutta, June 1911, F. H. G., Regn. No. 8553/18 (Deposited in Zoological Survey of India, Calcutta).

Distribution: India: West Bengal.

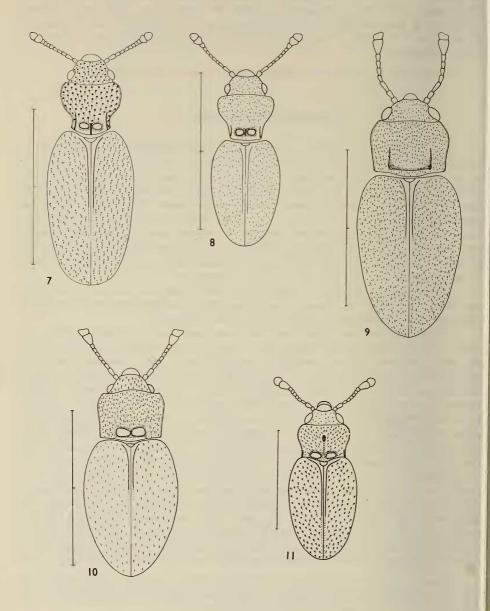


Fig. 7-11.

7. Holoparamecus (Calyptobium) cordicollis n. sp., dorsal view; 8. Holoparamecus (Calyptobium) attenuatum (Motschulsky), dorsal view of type; 9. Holoparamecus (Tocalium) orientalis (Motschulsky), dorsal view of type; 10 Holoparamecus (Tocalium) externus (Motschulsky), dorsal view of type; 11. Hotoparamecus horni Wasmann, dorsal view of type. (Scale for Figs. 1-11 is 1.0 mm.).

Holoparamecus (Calyptobium) attenuatum (Motschulsky)

Catyptobium attenuatum Motschulsky, 1867, Bull. Moscou 40: 101.
Calyptobium clavipes Motschulsky, 1867, Bull. Moscou 40: 102, Syn. n.
Holoparamecus (Calyptobium) ceylonicus Dajoz, 1973, Ent. scand. Suppl. 4: 201-203, Syn. n.

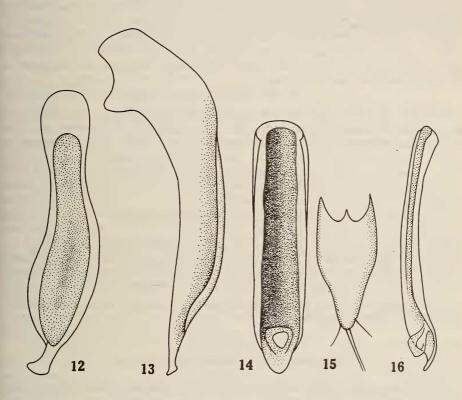


Fig. 12-16.

12. Aedeagus of Holoparamecus (s. str.) imporcitis n. sp., dorsal view; 13. Median lobe of Holoparamecus (s. str.) imporcitis n. sp., lateral view; 14. Median lobe of Holoparamecus (Calyptobium) attenuatum (Motschulsky), dorsal view; 15. Tegmen of Holoparamecus (Calyptobium) attenuatum (Motschulsky), dorsal view; 16. Median lobe of Holoparamecus (Calyptobium) attenuatum (Motschulsky), lateral view.

This is one of the most common species and distributed all over India and can be recognized by its prothorax being distinctly narrowed behind middle, basal humps prominent and roundish, lateral carinae moderately long and slightly developed, eyes moderately large, and dorsal surface finely punctate and pubescent. In the present study we have examined 60 examples collected from North-East India, Gangetic plain, North-West India, South India and compared them with the 'types' of *H. attenuatum*, *H. clavipes*

and *H. ceylonicus* (borrowed from Academy of Sciences, Leningrad and Muséum d'Histoire naturelle, Genève respectively). We are unable to find any difference among the types and the above material. Moreover, several male genitalia have been prepared from examples collected from different localities, which show no difference. Therefore, *H. clavipes* (Motschulsky) and *H. ceylonicus* Dajoz have been synonymized here with *H. attenuatum* (Motschulsky).

Material examined: Type of *H. (C) attenuatum*: 1 ex., on card, 'Ind Or' (=India-Oriental), *Calyptobium attenuatum* Motsch. (deposited in Zoological Institute, Academy of Sciences, Leningrad); Types of *H. (C.) clavipes*: 2 ex., on single card, 'Ind Or' (=India-Oriental), *Calyptobium clavipes* Motsch. (deposited in Zoological Institute, Academy of Sciences, Leningrad); Types of *H. (C.) ceylonicus*: 2 Paratypes, CEYLAN Southern, Yala Nat. Park, 24.I.1979, Mussard-Besuchet-Löbl (deposited in Muséum d'Histoire naturelle, Genève).

Additional Material: 60 exs. India: Assmm, Panbari, 8 ex., 15.XI.1974, T. Sengupta, ex under bark *Bombax* sp.; Kaziranga, Mikir Hills, 3 ex., 14.XI.1974, T. Sengupta, ex dried Til plants; Phulbari, 2 ex., 24.XI.1974, T. Sengupta, ex dead leaf garbage; Meghalaya, Garo Hills, Songsak, 7 exs., 20.XI.1974, T. Sengupta, ex lump of dead cut grass; West Bengal, Darjeeling distinct, Dange, 1 ex., 1.IV.1978, A. R. Bhaumik, ex under stone; Jalpaiguri district, Madarihat, 16 ex., 8.XI.1974, T. Sengupta, ex dung of elephant; Kharibari, 1 ex., 9.XI.1974, T. Sengupta, ex under fungusy bark of old Odal cut tree; Rajabhatkhaowa forest, 1 ex., 11.XI.1974, T. Sengupta, ex Large fungus on logs of *Amoora wallichi*; Howrah district, Sankrail, 2 ex., 13.I.1976, T. K. Pal, ex haystack; Ranihati, 2 ex., 11.V.1975, T. K. Pal, ex haystack; Burdwan district, Burdwan, 1 ex., 10.VII.1976, T. K. Pal, ex haystack; Bihar, Chaibasa, 9 ex., 14.X.1971 & 29.XII.1970, ex haystack; Uttar Pradesh, Gorakhpur, Kusmi Forest, 1 ex., 5.XI.1972, ex refuse of crop; Delhi, 1 ex., 12.V.1972, T. Sengupta, ex haystack of Jowar; Tamil Nadu; Madras, 5 ex., 30.XI.1971, T. Sengupta, ex haystack.

Distribution: India: Assam, Meghalaya, West Bengal, Bihar, Uttar Pradesh, Delhi, Tamil Nadu; Sri Lanka.

Holoparamecus (Calyptobium) sanguineus n. sp.

This is a distinct species, unlike any other Indian species its basal humps of pronotum united at middle, and dumble-shaped, pronotum rather flat and its shape characteristic (Fig. 5).

General appearance (Fig. 5) elongated, moderately depressed, somewhat subparallel, pronotum moderately narrowed posteriorly with basal humps narrowly united at middle, yellowish to reddish brown, moderately shiny, covered with short, semierect pubescence.

Exposed part of head wider than long, eyes moderately large, coarsely faceted, slightly shorter than half of length of head; fronto-clypeal suture arcuate, dorsal surface of head impunctate and covered with short and fine pubescence. Antenna moderately long and slender, scape moderately large and slightly hidden under lateral side of frons, pedicel slightly longer and narrower than scape, segments 3-6 short, subequal and about as wide as long, segments 7-9 slightly transverse of which segment 9 wider than segments 7 and 8, segments 10 and 11 somewhat transverse, Prothorax transverse (1:1.25), widest near anterior one-third, narrowed posteriorly and littly contracted near posterior one-third, apical margin feebly rounded and not bordered, anterior angles bluntly obtuse and rounded; lateral sides gently curved and sinuate in

posterior half, finely bordered; basal margin almost straight, posterior angles slightly obtuse, pronotum slightly convex, basal humps well developed, each hump somewhat rounded, humps narrowly unite at middle and somewhat dumble-shaped, outer margin of humps bordered by shallow and narrow groove, lateral carinae moderately long and approximated towards side margins, pronotum impunctate and finely pubescent. Elytra convex, oblong, widest near middle, sides gently and evenly curved, apex rounded, humeri obtuse, impunctate, pubescence fine and posteriorly projected; sutural striae continued beyond posterior two-thirds, distinct in anterior half. Aedeagus (Fig. 17) with median lobe slender, elongated moderately narrowed apex; longitudinally grooved and spatulate at apex; tegmen narrowed at apex and extended upto posterior end of aedeagus, with 4 short apical setae.

Measurements of holotype: Total length 1.02 mm., width of head across eyes 0.24 mm., length of antenna 0.30 mm., length and breadth of prothorax 0.27 and 0.31 mm., length and breadth of elytra 0.64 and 0.42 mm.

Holotype &, India: West Bengal, Howrah district, Sankrail, 25.XII.1975, T. K. Pal, ex haystack. Paratype 1 ex., data same as holotype; Paratypes 6 ex., Tamil Nadu, Madras, 30.XI.1971, T. Sengupta, ex haystack (Deposited in Zoological Survey of India, Calcutta).

Distribution: India: West Bengal, Tamil Nadu.

Holoparamecus (Calyptobium) velutinus n. sp.

In general facies resembling *H. attenuatum* (Motschulsky) and can be differentiated by its pronotum being impunctate and pubescent, basal humps separated by a distinct median ridge, base of elytra about as wide as prothoracic base, and species larger and shiny.

General appearance (Fig. 6) elongated, rather convex, subovate, pronotum narrowed posteriorly, basal humps moderately widely separated with a small median ridge, lateral carinae moderately long; deep brown, shiny and pubescent.

Exposed part of head wider than long; eyes moderately large and coarsely faceted, about one-third as long as head; fronto-clypeal suture arcuate, with long and moderately dense pubescence. Antenna moderately long and slender, scape moderately large and slightly hidden under lateral side of frons, pedicel about as long and as wide as scape, segments 3 and 4 shorter and narrower than pedicel, segment 5 longer and slightly wider than segment 4, segments 6-9 shorter and subequal of which segment 9 slightly wider than preceding segment, segments 10 and 11 about as broad as long. Prothorax slightly transverse (1.00: 1.14), widest near anterior one-third, narrowed posteriorly and contracted abruptly near posterior one-third, apical margin slightly convex and not bordered, anterior angles rounded, lateral sides almost rounded in anterior two-thirds and posterior one-third almost parallel-sided, lateral border of pronotum not visible from above except in posterior third and slightly approximated towards ventral side, basal margin almost straight, posterior angles slightly rounded, pronotum rather convex, basal humps well developed, each hump transverse and slight obliquely situated, humps separated by a median ridge, outer margin of humps bordered by shallow and narrow groove; lateral carinae well developed, curved, moderately long and situated almost at middle between lateral margin and basal humps. Pronotum impunctate and covered with long and moderately dense pubescence. Elytra elliptic-oval, convex, widest near anterior one-third, sides evenly curved, humeri indistinct, pubescence moderately long and arising from distinct punctures, sutural striae distinct almost upto apex. Aedeagus (Figs. 18, 19) with median lobe broadly elongated, distinctly bent ventrally and apex spatulate, rounded and with a few short setae, anterior end with a large orifice; tegmen moderately long, narrowed at apex, with a few short apical setae.

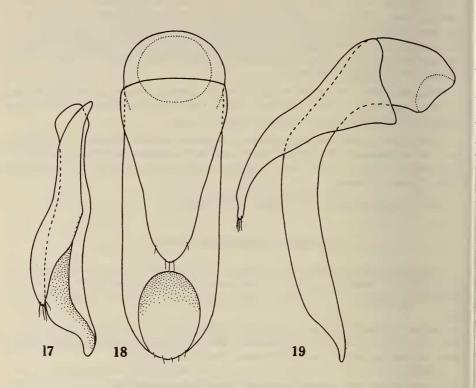


Fig. 17-19.

17. Aedeagus of Holoparamecus (Calyptobium) sanguineus n. sp., dorso-lateral view;
 18. Aedeagus of Holoparamecus (Calyptobium) velutinus n. sp., dorsal view;
 19. Aedeagus of Holoparamecus (Calyptobium) velutinus n. sp., lateral view.

Measurements of holotype: Total length 1.71 mm., width of head across eyes 0.37 mm., length of antenna 0.60 mm., length and breadth of prothorax 0.42 and 0.47 mm., length and breadth of elytra 1.10 and 0.64 mm.

Holotype &, India: Tamil Nadu, Nilgiri, Ootacamund, 2150-2200 m., 21.XI.1972, Besuchet-Löbl-Mussard. Paratypes 11 ex., data same as holotype. (Holotype and 6 Paratypes in Muséum d'Histoire naturelle, Genève and 5 Paratypes in Zoological Survey of India, Calcutta.)

Distribution: India: Tamil Nadu.

Holoparamecus (Calyptobium) cordicollis n. sp.

This species is near to *H. niger* Aubé but can be distinguished by its basal humps of pronotum being smaller, lateral carinae near prothoracic base more approximated towards basal humps, pronotal base narrower, puncturation distinctly coarser, species comparatively dull and reddish brown.

General appearance (Fig. 7) elongated, rather convex, subovate; reddish brown, shiny and pubescent; pronotum narrowed posteriorly, with well developed basal humps and lateral carinae.

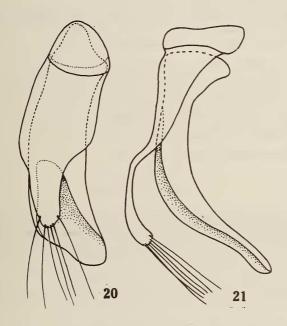


Fig. 20-21.

Aedeagus of Holoparamecus (Calyptobium) cordicollis n. sp., dorsal view;
 Aedeagus of Holoparamecus (Calyptobium) cordicollis n. sp., lateral view.

Exposed part of head wider than long, eyes large and coarsely faceted, about half as long as head; fronto-clypeal suture slightly arcuate, with moderately coarse and sparse punctures, pubescence moderately dense. Antenna moderately long and slender, scape moderately large and slightly hidden under lateral side of frons, pedicel longer than scape; segments 3-5 elongated, short and subequal; segments 6-9 shorter, subequal and progressively slightly wider, segment 10 transverse and segment 11 about as broad as long. Prothorax slightly transverse (1.00: 1.28), widest near anterior one-third, narrowed posteriorly and abruptly contracted near posterior one-third, apical margin indistinctly bordered, anterior angles rounded, lateral sides gently curved in anterior two-third and parallel in posterior third, sides finely bordered, basal margin rounded,

posterior angles slightly obtuse; pronotum rather convex, basal humps well developed, each hump slightly transverse, humps separated by a fine median ridge, outer margin of humps bordered by shallow and narrow groove; lateral carinae moderately long, well developed and elevated, situated almost at middle between lateral margin and basal humps. Pronotum moderately coarsely and sparsely punctate; covered with short, fine and moderately dense pubescence. Elytra elliptic-oval, convex, widest near anterior one-third, sides evenly curved, humeri obtuse, puncturation fine and confused; pubescence short, fine and moderately dense; sutural striae extended beyond posterior one-third, distinct in anterior half. Aedeagus (Figs. 20, 21) with median lobe broadly elongated, distinctly bent ventrally and rounded at apex; tegmen long, slightly extended beyond the posterior end of aedeagus, narrowed at apex, with a few long apical setae.

Measurements of holotype: Total length 1.17 mm., width of head across eyes 0.28 mm., length of antenna 0.38 mm., length and breadth of prothorax 0.30 and 0.31 mm., length and breadth of antenna 0.82 and 0.50 mm.

Holotype &, India: Kerala, Neliampathy Hills, Kaikatty, 900 m., 30.XI.1972, Besuchet-Löbl-Mussard. Paratypes 6 ex., data same as holotype; Paratypes 2 ex., Kerala, Cardamon Hills, 5 km W. Kumily, 1000 m., 6.XI.1972, Besuchet-Löbl-Mussard; Paratypes 15 ex., Tamil Nadu, Anaimalai Hills, Valparai, 1100 m., 20.XI.1972, Besuchet-Löbl-Mussard. (Holotype and 15 Paratypes in Muséum d'Histoire naturelle, Genève and 8 Paratypes in Zoological Survey of India, Calcutta).

Distribution: India: Kerala, Tamil Nadu.

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